CLAIMS

What is claimed:

1. A thin film device comprising:

at least one patterned thin film layer;

a heater material coupled to at least one of the patterned thin film layers for providing thermal assistance thereto; and

a conductor coupled to the heater material to supply energy to the heater material.

2. The device of claim 1 wherein the thin film device comprises a magnetic random access memory device.

3. The device of claim 1 wherein the thin film device comprises a sensor.

4. The device of claim 1 wherein the at least one patterned thin film layer is formed on the heater material.

5. The device of claim 1 wherein the conductor is a split conductor and the heater material is connected between the split conductor.

6. The device of claim 1 wherein the energy comprise radio frequency energy.

7. The device of claim 2 wherein the at least one patterned thin film layer comprises a magnetic memory element.

8. The device of claim 4 wherein the heater material comprises at least one of amorphous silicon and amorphous carbon.

9. The device of claim 4 wherein the heater material comprises a metal.

10. The device of claim 5 wherein the conductor comprises a conductive sidewall material comprising at least one of Cu, Au, Ag, Pt, Al.

11. The device of claim 6 wherein the magnetic memory element comprises at least one of a spin dependent tunnel junction and a giant magnetoresistive device.

12. The device of claim 6 wherein the magnetic memory element includes a free layer and the heater material provides thermal assistance in switching a magnetic orientation of the free layer.

13. The device of claim 6 wherein the at least one patterned thin film layer is formed over a dielectric material and the dielectric material is in contact with the heater material.

14. The device of claim 10 wherein the conductive side wall material is coupled to a power source.

15. The device of claim 14 wherein the conductive side wall material is coupled to the power source via a decoder.

16. A method of providing thermal assistance in a thin film device comprising:

heating at least one of a plurality of patterned thin film layers by selectively exposing the at least one of the patterned thin film layers to energy from a power source; and

performing an operation with the selectively exposed at least one of the plurality of patterned thin film layers.

17. The method of claim 16 wherein the thin film device comprises a magnetic random access memory device.

18. The method of claim 16 wherein each of the plurality of magnetic memory elements comprises a spin dependent tunnel junction.

19. The method of claim 18 wherein each of the plurality of patterned thin film layers comprises a magnetic memory element.

20. The method of claim 19 wherein each of the magnetic memory elements are formed with the following process:

depositing a heater material over a dielectric material;

forming a plurality of trenches in a dielectric material; and

forming sidewall material on each of the plurality of trenches wherein the sidewall material is coupled to the heater material; and

forming each of the plurality of magnetic memory elements in contact with the heater material.

21. The method of claim 20 wherein the sidewall material comprises at least one of Cu, Au, Ag, Pt, Al.

22. The method of claim 20 wherein the power source comprises a radio frequency power source.

23. The method of claim 20 wherein the heater material comprises at least one of amorphous silicon and amorphous carbon.

24. The method of claim 20 wherein the heater material comprises a metal.

25. The method of claim 20 wherein each of the plurality of magnetic memory elements includes a free layer and performing an operation with the selectively exposed at least one of the plurality of magnetic memory elements further comprises switching a magnetic orientation of the free layer of the selectively exposed at least one of the plurality of magnetic memory elements.

26. The method of claim 20 wherein forming sidewall material on each of the plurality of trenches further comprises:

depositing a conductive material over the plurality of trenches; and

performing an anisotropic etch on the conductive material.

27. The method of claim 26 wherein the conductive material comprises at least one of Cu, Au, Ag, Pt, Al.

28. The method of claim 27 wherein heating at least one of the plurality of magnetic memory elements by selectively exposing the at least one of the plurality of magnetic memory elements to energy from a power source further comprises:

applying energy to the sidewall material whereby energy is transferred to the free layer through the heater material.

29. The method of claim 28 wherein applying energy to the sidewall material includes applying the energy to the magnetic memory elements prior to switching the magnetic orientation of the free layer.

30. The method of claim 28 wherein applying energy to the sidewall material includes applying the energy to the magnetic memory elements simultaneous to switching the magnetic orientation of the free layer.

31. A computer system comprising:

a processor;

an interface module coupled to the processor; and

a magnetic random access memory device coupled to the interface module wherein the magnetic random access memory device includes a plurality of magnetic memory elements, a heater material coupled to at least one of the plurality of magnetic memory elements for providing thermal assistance in switching a magnetic orientation of the at least one of the plurality of magnetic memory elements and a conductor coupled to the heater material for supplying energy to the heater material.

32. The computer system of claim 31 wherein each of the plurality of magnetic memory elements comprises a spin dependent tunneling junction.

33. The computer system of claim 31 wherein each of the plurality of magnetic memory elements is formed on the heater material.

34. The computer system of claim 33 wherein the heater material comprises amorphous carbon.

35. The computer system of claim 33 wherein the heater material comprises amorphous silicon.

36. The computer system of claim 33 wherein the heater material is coupled to a conductive sidewall material wherein the conductive sidewall material comprises at least one of Cu, Au, Ag, Pt, Al.

37. The computer system of claim 36 wherein the heater material is formed in between the conductive sidewall material.

38. A magnetic random access memory device comprising:

a plurality of magnetic memory elements;

a heater material coupled to at least one of the plurality of magnetic memory elements;

a decoder coupled to the heater material; and

a radio frequency power source coupled to the decoder for providing heat to the heater material to thermally assist in switching a magnetic orientation of the at least one of the plurality of magnetic memory elements.